FACTORS AFFECTING FOREIGN-LANGUAGE LEARNING: A CONSIDERATION OF SOME RECENT RESEARCH FINDINGS

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There have been few carefully designed long-term studies of the factors affecting the acquisition of a foreign language during childhood and adolescence. Anecdote abounds, but reliable evidence is hard to find. Reviewing the previous five years' research into foreign-language learning in 1966, Carroll commented on the 'dearth of studies' in this area and concluded: '...we have as yet no respectable longitudinal studies of persons who have learned a foreign language in the primary school and continued its study through adolescent and adult years' (Carroll, 1966). Earlier, Stern (1963) had pointed to the lack of evidence regarding the social and emotional factors thought to be involved in foreign-language learning during the early school years. Up to that time, studies of foreign-language learning had tended to concentrate on the measurement of language proficiency, neglecting the possible influence of motivational factors (e.g. Agard & Dunkel, 1948; Vollmer & Griffiths, 1962; Dunkel & Pillet, 1962). Stern considered that there was a particularly urgent need for research into those factors which might lead to the childhood development of positive or negative attitudes towards foreign peoples and their culture, with potentially beneficial or detrimental effects on the acquisition of the language in question.

Unfortunately, much of the research undertaken in this area in recent years has been limited in scope or deficient in control procedures. A number of excellent small-scale studies have been carried out, but their findings are subject to inevitable constraints. For example, the most recent report on the St Lambert project (Lambert, Tucker & d'Anglejan, 1973), in which the attitudes and attainments of English-speaking Canadian children, taught mainly through the medium of French since kindergarten, are compared with those of monolingual French-speaking and English-speaking controls, reveals that the experimental sample has dwindled to 30 children in Grade 4 and 20 children in Grade 5. Similarly, the investigation of children's attitudes towards foreign peoples, carried out within the University of Illinois Foreign Language Instruction Project (Riestra & Johnson, 1964), is based on an experimental sample of 63 children. It goes without saying that findings based on such limited samples must be interpreted with extreme caution. In this connection, it is interesting to note that Gardner and Lambert, in a recent review of their research programme (Gardner & Lambert, 1972), advocate a 'shift' to large-scale longitudinal studies, in which information about intellectual abilities, as well as attitudes, values and other motivational factors, would be gathered from children and parents before the beginning of a foreign-language programme, as well as during its course or upon its completion. Gardner and Lambert consider this change in approach to be necessary in order to 'disentangle attitudes and proficiency so that one can follow more clearly the causal sequence'.

The purpose of the present paper is to move towards a disentanglement of the kind envisaged by Gardner and Lambert. The available research evidence will be examined and findings which have a bearing, whether direct or indirect, on the factors affecting foreign-language learning will be discussed. The first part of the paper will be devoted to an examination of the influence of motivational factors on foreign-language learning and will consider 'integrative' versus 'instrumental' motivation, the effect of contact with the foreign culture, the influence of socio-economic factors, sex differences in foreign-language learning, achievement in the small school, teacher–pupil interaction and, finally, the effect on the pupil of different methods of presenting foreign-language material. The second part of the paper will consider the evidence for the existence of an 'optimum age' for foreign-language learning.

1. Motivation for foreign-language learning

(i) '*Integrative*' *versus* '*instrumental*' *motivation*

It has been argued, notably by Gardner and Lambert and their associates, that the successful acquisition of a foreign language depends, in the main, on specific motivational factors. Gardner and Lambert have on a number of occasions advanced the view that the key to success in foreign-language learning lies in the adoption of an 'integrative' orientation towards the foreign culture, as characterised by the student's willingness to share certain of the attributes of members of the other 'linguistic community' and to regard himself as a potential member of that community. According to this view, foreign-language learning is less likely to meet with success if the student's underlying motivation is 'instrumental' rather than 'integrative' – if, that is, he places a utilitarian value on the achievement of proficiency in the foreign language, without seeking active contact with the speakers of that language nor further knowledge of their culture (Gardner & Lambert, 1959; Lambert, Gardner, Olton & Tunstall, 1961; Gardner, 1966).

This hypothesis was examined in the course of the NFER evaluation of the teaching of French in primary schools (1974), but the findings of the evaluation lent only partial support to the view put forward by Gardner and Lambert: although pupils' attitudes and achievement proved to be closely associated, the motivational characteristics of individual pupils appeared to be neither exclusively integrative nor wholly instrumental. On the one hand, the majority of pupils taking part in the experiment, whether they liked learning French or not, tended to share an integrative motivation, evincing a strong desire for contact with French people and agreeing that they were primarily learning French in order to be able to communicate with other speakers of the language. On the other hand, there was also ample evidence of instrumental motivation in the emphasis placed by the experimental pupils on the 'pay-off' value of learning French, in terms of enhanced employment opportunities (Burstall, 1970, 1974). It is interesting to note in this connection that Gardner and his associates have recently begun to depart somewhat from their original view that success in foreign-language learning is crucially dependent upon the adoption of an integrative orientation towards the foreign culture. It is now suggested that an integrative orientation may not inevitably lead to superior achievement in foreign-language learning, if the cultural context is one in which the acquisition of the foreign language has obvious practical value. Reporting their study of foreign-language learning in the Philippines, Gardner and Santos (1970) conclude: 'In this cultural context where the second language has unequivocal instrumental value, students who are instrumentally oriented and who receive support from their parents for this orientation are more successful in acquiring the second language than students not evidencing this supported type of orientation.' These findings are consistent with those reported during the course of the NFER evaluation, which indicated an association between parents' support for foreign-language learning and their evaluation of its relevance to their children's employment prospects.

It was notable, for example, throughout the period of the NFER study, that the attitudes of the girls towards foreign-language learning were consistently more favourable than those of the boys. For instance, significantly more girls than boys agreed that they would like to speak many languages, go to France and meet French people, and continue their study of French in future years. Significantly more girls than boys also thought that all children should start to learn French in the primary school and that French would be useful to them in their future life. In addition, the girls were more confident than the boys of their parents' support and encouragement. The boys' attitudes towards foreign-language learning tended to be comparatively unfavourable. Significantly more boys than girls felt that learning French was a waste of time and that there were more important subjects on which they should be concentrating their effort. Unlike the girls, the boys did not believe that a knowledge of French would be useful to them after they had left school. Evidence from other studies suggests that the more positive attitudes expressed by the girls represent, in the main, a response to social and cultural pressures. Robinson (1971) has suggested that being 'good at language' may be seen as admirable for girls, but unmanly for boys. The view that foreign-language learning is a more suitable accomplishment for girls than for boys is undoubtedly still current in our society, reinforced by the fact that a knowledge of foreign languages has a direct and obvious application to the future employment possibilities open to girls, but is less clearly relevant to those available to boys. Adolescent pupils of both sexes have been reported as viewing the enhancement of vocational success as the primary function of education and, in consequence, to place a high value on school subjects, such as Mathematics and English, which have an obvious relevance to their future employment prospects. Girls and their parents are also reported as accepting the vocational value of foreign-language learning, but boys and their parents are reported as not doing so (Schools Council, 1968; Summer & Warburton, 1972).

(ii) *Contact with the foreign culture*

It has been suggested that pupils will develop positive attitudes towards foreign peoples simply as a result of receiving foreign-language instruction. Riestra and Johnson, for example, investigated the attitudes of fifth-grade pupils towards Spanish-speaking peoples and found that the attitudes of the experimental pupils, who were studying Spanish, were significantly more positive than those of the control pupils, who had no knowledge of Spanish. The authors interpreted their findings as evidence that 'teaching a foreign language to elementary-school children...is a potent force in creating more positive attitudes towards the peoples represented by that language' (Riestra & Johnson, 1964). The findings of the NFER evaluation cited above would appear to indicate, however, that the mere process of foreign-language learning is not in itself sufficient to promote positive attitudes towards the foreign culture, although actual contact with the representatives of that culture may be an important factor both in the development of positive attitudes and in the achievement of linguistic competence. For example, it was found repeatedly that pupils who had been to France differed significantly in attitude and achievement from those who had not had this opportunity: those who had been to France expressed more positive attitudes towards France and the French, as well as towards learning French, than did those who had not been to France; the former also reached a significantly higher level of achievement in both spoken and written French (Burstall, 1974). Carroll, in his survey of the foreign-language attainments of American college and university students majoring in modern languages, also found that students who had been abroad were superior in foreign-language skills to those who had not been abroad: the longer the period abroad, the more marked the differences in level of achievement. Summing up his findings, Carroll wrote: '...it is tempting to conclude that going abroad is an important causative variable influencing language competence, and such a conclusion accords with common experience...Nevertheless, until more information is available from studies based on pre-test and post-test comparisons of groups who are and who are not sent abroad, it is impossible to state with certainty – at least on the basis of the present data – just what the effect of travel and study abroad may be' (Carroll, 1967).

The longitudinal nature of the NFER study permitted such comparisons to be carried out: the early attitudes and achievement of pupils who later went to France were compared with those of pupils who did not subsequently visit France. The outcomes indicated that those who later visited France had already reached a level of achievement superior to that of the rest of the experimental sample before their visit to France; they were also more favourably inclined towards learning French. As might have been anticipated, the pupils who were later to visit France also proved to be disproportionately representative of the higher socio-economic strata. It seems probable, therefore, that the enhanced achievement and more positive attitudes of those who went to France derived at least in part from their more favoured socio-economic status. It is, however, interesting to note that one of the areas in which the two groups of pupils differed most significantly was in their attitudes towards spoken French. Significantly more of those who had been to France than of those who had not done so expressed a preference for the spoken aspects of learning French and indicated that they would like to be able to speak several languages. Those who had not been to France tended to express a great deal of anxiety about speaking in French, complained that they were unable to understand spoken French and indicated that they would prefer to limit their studies to the acquisition of a reading knowledge of the language. Taylor and her associates (Taylor, Catford, Guiora & Lane, 1971) investigated the factors involved in acquiring spoken fluency in a foreign language (in this instance, Japanese) and concluded that 'empathic capacity' accounted for more than half the variance in performance. Empathic capacity was held to include the ability to understand other people's feelings, to appreciate the details of their behaviour and to respond appropriately. It is possible that this is a capacity which develops more rapidly when pupils are brought into direct contact with a foreign culture than when they are attempting to learn a foreign language in a monocultural setting.

(iii) *Socio-economic factors*

Evidence has recently been put forward which suggests that there are social class differences in the rate at which children acquire mastery of the syntactic rule system of their mother tongue (Dewart, 1972) and that there are corresponding differences in language production, working-class 'message systems' being more stereotyped and therefore more readily predictable than middle-class ones

(Poole, 1972). The possible effect of social class differences on the development of foreign-language skills has hitherto received scant attention. However, during the NFER evaluation, it rapidly became apparent that the pattern of results emerging from the enquiry pointed to a linear relation between the pupil's social class, his attitude towards learning French and his level of achievement in French. On each occasion of testing, the pupils in the experimental sample differed significantly in attitude and achievement according to their socio-economic status: positive attitudes towards learning French and high scores on the French achievement tests were consistently associated with high socio-economic status, negative attitudes and low scores with low socio-economic status (Burstall, 1968, 1970, 1974). This trend was evident during the primary stage of the experiment, but became even more prominent when the pupils in the experimental sample transferred to the different types of secondary school: higher levels of achievement and more positive attitudes towards foreign-language learning and foreign culture were found to be most characteristic of the grammar school and the comprehensive school pupils, while lower levels of achievement and more ethnocentric attitudes were found to be most characteristic of the bilateral school and the secondary modern school pupils, a finding which adds support to the existing evidence that children with parents in higher-status occupations tend to receive more parental support when they approach new learning experiences than do those with parents in lower-status occupations (Douglas, 1964; Central Advisory Council for Education, 1967; Robinson, 1971).

A similar association between socio-economic status and achievement in school subjects has been reported by a number of research workers (Douglas, 1964; Morris, 1966; Goodacre, 1968; Barker-Lunn, 1970), but it was thought possible that the influence of socio-economic factors might be less potent in the context of the French experiment, since all pupils were to begin their study of the language from a standpoint of equal ignorance. In the event, however, this was to underestimate the powerful influence of motivational factors on achievement: children with a previous history of failure in school tend to develop low aspirations and a negative view of their learning potential, reinforced by the perception that others have equally low expectations of their success. Such children in no way approach a new learning situation on a footing of equality with children whose previous record of achievement has led to high aspirations and a confident expectation of further success.

(iv) *Sex differences*

Studies which have investigated children's verbal skills in the mother tongue have commonly found significant differences in achievement in favour of girls, prominent during the early years of schooling but tending to diminish with the approach of puberty (Douglas, 1964; Wisenthal, 1965; Morris, 1966; Barker-Lunn, 1970). In the field of foreign-language learning, however, there are few studies which have supplied data on sex differences in achievement: this has often been because the samples used have been too small to split by sex. Carroll (1963 *b*) did report that girls showed a slight but significant superiority to boys in foreign-language aptitude, but had no comparable data on sex differences in achievement. Johnson and his associates, in their study of the teaching of Spanish at the elementary level, reported that the girls in their sample reached a higher level of achievement in Spanish than did the boys (Johnson, Flores, Ellison & Riestra, 1963). Nisbet and Welsh (1973) investigated achievement in French during the first two years of secondary school and found also that the level of achievement of the girls was consistently higher than that of the boys. Brega and Newell (1967), however, found no sex differences in achievement in French when they studied a group of late-adolescent students. Similarly, Carroll (1967) found no sex differences in the foreign-language attainments of male and female college and university students.

The findings of the NFER evaluation are in harmony with those of Johnson and his associates and of Nisbet and Welsh, but at variance with those of Brega and Newell and of Carroll. Sex differences in achievement favouring the girls were evident on the first occasion of testing and persisted throughout the period of the experiment, showing no sign of diminution when the pupils entered the adolescent period. At the age of 13, the girls in the experimental sample were still scoring significantly higher than the boys on all tests measuring achievement in French, just as they had done during the primary stage of the experiment. From the age of 13 onwards, the low-achieving boys in the sample tended to 'drop' French to a significantly greater extent than the low-achieving girls did, with the result that the sample of girls still learning French at the age of 16 represented a considerably wider range of ability than the corresponding sample of boys. However, in spite of this disparity, the girls still continued at the age of 16 to score significantly higher than the boys on each of the French tests. If the composition of the original experimental sample had been maintained until the end of the secondary stage of the experiment, there can be little doubt that sex differences in achievement in French favouring the girls would have been even more prominent.

It is, of course, important to bear in mind that the studies carried out by Brega and Newell and by Carroll drew on samples which were highly selective from the socio-economic point of view. It may be, as Bernstein (1971) has suggested, that sex differences in language performance are particularly characteristic of boys and girls from the lower socio-economic strata. Some support for this view may be derived from the finding that, during the early part of the secondary stage of the NFER evaluation, when the experimental sample was still relatively intact, the most marked sex differences in achievement in French occurred in the secondary modern schools, whose intake was predominantly drawn from the lower socio-economic strata.

It is possible, of course, that if Britain's involvement in the European Economic Community eventually led to increased oportunities for boys to find employment which would demand a knowledge of foreign languages and so enhance the 'pay-off' value of foreign-language learning, there might be a marked diminution of sex differences in achievement. Some support for this view may be found in Morris's (1966) evidence that differences in boys' and girls' reading skills are attributable to motivational and environmental factors rather than to differences in ability, and in Preston's (1962) finding, arising from a comparative study of reading comprehension in the United States and in Germany, that although girls reach a higher level of achievement than boys in the United States, the reverse is true in Germany. Preston ascribes these results to the fact that 'reading and learning' are regarded as approved masculine activities in Germany, where the teaching force, even at the elementary level, is predominantly male, whereas in the United States reading skills are often 'associated with femininity'.

(v) *Achievement in the small school*

The schools involved in the NFER evaluation had a wide geographical distribution and varied greatly in size. The experimental sample included a number of small rural schools, the smallest of which had 16 pupils on roll, the largest 160 pupils. Throughout the primary stage of the experiment, the pupils in these small rural schools maintained a higher level of achievement in French than did those in the larger urban schools. This finding was an unexpected one. The classes in the small schools usually contained pupils differing widely in age and ability, and classroom conditions were often inimical to the teaching of French by audio-visual means. In spite of these apparently adverse circumstances, however, the test performance of the pupils in the small schools was consistently superior to that of the pupils in the large schools. At first, it was thought that this superiority might be partly attributable to the small size of the classes in which the pupils attending the small schools were taught French, but this did not prove to be the case: further analysis of the data revealed no association between size of class and level of achievement in French. The possibility remains that the high level of achievement in the small schools stems partly from the heterogeneous nature of their classes. If a given class contains pupils who vary greatly in age and ability, the individual pupil is not in direct competition with others of his own age-group: the concept of a 'standard' of achievement, which a pupil of a given age 'ought' to be able to reach, is difficult for either teacher or pupil to acquire. The classroom situation in the small school tends to encourage co-operative behaviour and to lack the negative motivational characteristics of the competitive classroom in which success for a few can only be achieved at the expense of failure for many.

In addition, findings reported earlier (Burstall, 1968) had indicated that teachers, as well as their classes, tended to have different characteristics in large and small primary schools. Teachers in small schools were, on average, older than those in large schools and therefore tended to have had greater teaching experience. Teachers in small schools also tended to have acquired all their teaching experience in the primary school, often in one school only, whereas teachers in large schools tended to have had a more varied teaching experience and to be considerably more mobile. Teachers in small schools tended to live in the village which the school served and to occupy a high-status role in the life of the community; teachers in large schools tended to live some distance from their place of employment and often had few points of contact with the community in which the school was situated. It was also observed that the head of a small school tended to carry a large part of the teaching load and to spend much of his day in direct contact with his pupils, whereas it was rare for the head of a large school to develop close relationships with his pupils. Recent research by Sumner and Warburton (1972) suggests that pupils in small schools regard the head as more important in their lives than do pupils in large schools and are also more responsive to evidence of 'teaching effort'. Such factors may well have contributed to the differences in level of achievement observed in the schools taking part in the experiment. That these differences are of a persistent nature has been demonstrated by a recent follow-up study (Burstall, 1974). It was found that, even after two years in a secondary school, pupils who had formerly attended small primary schools continued to achieve significantly higher scores on French tests than did their classmates who had formerly attended large primary schools.

There is some evidence (Barker-Lunn, 1970, 1971) that a pupil's attitude towards his own learning potential and towards life in school is positively associated with the way in which he perceives his relationships with his teachers. There is also evidence (Dale, 1969, 1971; Sumner & Warburton, 1972) that pupils in small schools tend to form closer relationships with their teachers than do pupils in large schools. The higher level of achievement in French of pupils in small schools may thus be at least partly attributable to the early establishment of good teacher–pupil relationships and the subsequent development of positive attitudes towards further learning.

(vi) *Teacher–pupil interaction*

The possibility that a pupil's level of achievement might to some extent be determined by the attitudes and expectations of his teacher has long been a matter of debate, but until recently there has been little direct experimental evidence on which to base judgement. In 1968, however, the issue was brought into sharp focus by the publication of a controversial study (Rosenthal & Jacobson, 1968) which purported to demonstrate the direct effect of teacher expectation on pupil performance. In this study, teachers in an elementary school were presented with test results that allegedly predicted which of the children in their classes were 'most likely to show an academic spurt'. The children concerned, who had actually been selected at random, were subsequently re-tested on three occasions: the authors claimed that the re-test results supported the proposition that the teachers' expectations had influenced the children's intellectual development. Unfortunately, this study is so open to criticism on methodological grounds (see, for instance, Thorndike, 1968; Jensen, 1969; Snow, 1969) that its findings can be given little weight. Nevertheless, the publication of the study has not been without value, since it has undoubtedly stimulated further research into the possible effects of teacher expectation on pupil performance. There have been two recent review studies in this field (Pidgeon, 1970; Rosenshine, 1971) and a number of experimental investigations. Attempts to replicate the original study, however, have met with little success. Claiborn (1969) followed the same procedures as Rosenthal and Jacobson, but over a somewhat shorter period, and found no evidence at all to support the earlier findings: the 'potential academic bloomers' stubbornly failed to bloom. José and Cody (1971) attempted a partial replication of the original study, with the addition of a teacher–pupil interaction analysis, but were unable to identify any effect of teacher expectation on pupil performance nor observe any differences in teachers' overt behaviour towards the pupils designated as 'potential bloomers'. A further investigation of the 'self-fulfilling prophecy' described by Rosenthal and Jacobson was carried out on a considerably larger scale by Fleming and Anttonen (1971), but with equally negative results. It was concluded that the teachers taking part in these last two studies had treated the experimenters' predictions with some scepticism and therefore had not actually modified their expectations for any given pupil.

Studies investigating teachers' attitudes and expectations which have been built up naturally over time rather than created in response to artificial circumstances have tended to produce more positive results. Palardy (1969), for example, found that the mean reading-test scores for boys in first-grade classes where the teachers expected boys to be less successful than girls in learning to read were significantly lower than those for comparable boys in classes where the teachers did not share this expectation. A large-scale study of the education of disadvantaged children (US Office of Education, 1970) also reported 'an extraordinarily consistent relationship between teacher expectations and the reading achievement gains of pupils'. The authors of this study reported that teachers' expectations and pupils' reading test scores were so closely related that 'teacher predictions of pupils' academic future could be used instead of test information in some analyses'. Dusek and O'Connell (1973) found that teachers' estimates of their pupils' learning potential, formed at the beginning of the school year, were closely related to the pupils' scores on language and arithmetic tests, given at the end of the school year. The teachers taking part in this study reported that they had based their estimates on the pupils' performance in previous classes and on their behaviour in class during the first few weeks of the year. Dusek and O'Connell had also attempted to bias the teachers' estimates by informing them that certain of their pupils, actually chosen at random, would show unusual gains in linguistic and arithmetical skills during the course of the school year: this attempt was without apparent effect.

To the findings reported above may be added those of the NFER evaluation of the teaching of French in primary schools. It was found that pupils' mean scores on each of the French tests used during the primary stage of the experiment differed significantly according to the attitude taken by the head of the school towards the experimental teaching of French to children of all levels of ability: pupils' mean scores were significantly higher in schools where the head had a favourable attitude towards the experiment than they were in those where the head's attitude was unfavourable (Burstall, 1970, 1974). These results are consistent with those reported by Anastasiow and Espinosa (1966) in their evaluation of the teaching of Spanish in Californian elementary schools. They found that pupils' scores on tests of Spanish were significantly higher in schools where the principal's attitude towards the language-teaching programme was 'supportive' than in schools where it was 'negative'. Further, during both the primary and the secondary stages of the French experiment, the pupils' level of achievement in French was consistently rated more highly in those classes where the French teacher's attitude towards the class was considered 'positive' than in those classes where it was considered 'non-committal' or 'negative'. Somewhat similarly, a recent study of classroom behaviour carried out by Aspy and Roebuck (1972) has produced evidence of an association between the extent of a teacher's 'positive regard for students' and the level of 'cognitive functioning' which the teacher was able to elicit. Hughes (1973) also found children's achievement test scores to be positively related to the teacher's 'positive' or 'minimal' reactions to the children's responses in class. Evidence from studies such as these, carried out within the normal classroom, lends considerable support to the view that a close association exists between the teacher's attitudes and expectations and the pupils' attitudes and achievement.

Some indication of the subtle processes by which such an association is brought about may be gleaned from recent studies of classroom interaction. Brophy and Good (1970), for instance, in a study of teacher–pupil interaction in four first-grade classes, found that teachers demanded better performance from those children for whom they had higher expectations and were also more likely to praise such performance when it occurred. In contrast, they were more likely to accept poor performance from pupils for whom they had low expectations and were less likely to praise the latter's good performance when it occurred, even though it occurred less frequently. Similarly, Rist (1970), carrying out a longitudinal study of a class of black children in an urban ghetto school, reported that children judged by the teacher (apparently on the basis of social class criteria) to be potential fast learners received the majority of the available teaching time and the bulk of the teacher's supportive behaviour. Those judged to be potential slow learners, on the other hand, were taught infrequently and were subjected to considerable disapproval and rejection by the teacher. The gap between the two groups with regard to the completion of their course material inevitably widened as the school year advanced. The pupils' divergent performance on achievement tests given at the end of the year was then used as supporting evidence for the teacher's initial judgement: a chilling example of the self-fulfilling prophecy.

Even in the most favourable circumstances, however, it must not be assumed that pupils' attitudes will remain constant over time: maturational factors may well exert a considerable influence on the development of pupils' attitudes towards foreign-language learning. The findings of a recent cross-national study of children's attitudes towards foreign peoples suggest, for instance, that favourable attitudes may reach their peak at about the age of ten and thereafter decline during the early years of adolescence, concomitant with an accelerated development of the stereotyping process and an increase in loyalty towards the peer-group (Lambert & Klineberg, 1967). Other studies (Morse & Allport, 1952; Jahoda, 1953; Allport, 1954) have indicated that close identification with the values of the peer-group, at its height during the adolescent period, may be a crucial factor in the formation of prejudice and the consequent rejection of the values characteristic of foreign cultures.

Evidence from studies of school achievement also contributes to the view that the early adolescent period may be particularly critical for the development of negative attitudes towards the self as well as towards others. A number of studies (Douglas, Ross & Simpson, 1968; Schools Council, 1968; Sumner & Warburton, 1972), have noted the increasing negativity of the attitudes of unsuccessful secondary-school pupils, but Ferri's recent follow-up study of pupils involved in Barker-Lunn's (1970) investigation into the effects of streaming indicates that even high-achieving pupils, and particularly girls, may show a deterioration in their attitudes to school work and a decrease in their levels of aspiration during the early years of secondary education (Ferri, 1971). It has elsewhere been suggested (Maccoby & Jacklin, 1973) that high-achieving girls develop a 'will to fail' at this time, in response to strong social pressures.

Further, a considerable body of experimental evidence now exists which lends support to the view that pupils' attitudes towards learning are positively and significantly related to their eventual level of achievement. Much of the research in this area (e.g. Kurtz & Swenson, 1951; Brookover, Thomas & Paterson, 1964; Robinson, 1964; Austrin, 1965; Wisenthal, 1965; Khan, 1969; Russell, 1969) has been concerned with relations between pupils' achievement motivation and their general academic success (as reflected, for example, in their grade-point average), but there are also a number of studies which have specifically investigated associations between pupils' attitudes and achievement in the field of foreign-language learning (e.g. Jordan, 1941; Pimsleur, Stockwell & Comrey, 1962; Lambert, Gardner, Barik & Tunstall, 1963; Carroll, 1967; Feenstra & Gardner, 1968; Gardner & Santos, 1970; Gardner & Lambert, 1972). All these studies, whether dealing with academic success in general or with a particular subject-area such as foreign-language learning, have produced findings which lend support to the view that a positive association exists between pupils' level of achievement and their attitudes towards learning. It has even been suggested that pupils' 'motivation for school work', if objectively measured, could be used to predict their future level of achievement (Russell, 1969). In the case of the NFER evaluation, it is certainly true that the findings repeatedly and consistently indicated a positive and significant association between attitudinal factors and achievement in the foreign-language learning situation. On each of the French tests, whether measuring spoken or written skills, mean scores for pupils with favourable attitudes towards learning French were significantly higher than those for pupils with unfavourable attitudes. These findings applied equally to pupils of either sex. However, although such findings indicate the existence of a positive association between pupils' attitudes and achievement in foreign-language learning and suggest a complex interaction process, they shed no light on the possible direction of causality. Gardner and Lambert (1972) argue that the major causative variable influencing foreign-language acquisition is the attitude of the learner towards the foreign culture, on the grounds that this attitude represents 'a more stable personal characteristic' than any previous experience of achievement. The findings of the NFER study, however, point in the opposite direction: early achievement in French affected later attitudes towards learning French and later achievement in French to a significantly greater extent than early attitudes towards learning French affected the subsequent development of either attitudes or achievement. This would suggest that the acquisition of foreign-language skills and the development of attitudes towards foreign-language learning during later years may be powerfully influenced by the learner's initial and formative experience of success or failure in the language-learning situation.

(vii) *The presentation of material*

In their study of under-achievement in foreign-language learning, Pimsleur and his co-workers found a positive association between success in foreign-language learning and preference for the auditory modality. This led them to suggest that the principal component of linguistic ability might be the 'ability to receive and process information through the ear' (Pimsleur, Sundland & McIntyre, 1963). Lambert (1963), however, pointed out that the audio-visual approach to foreign-language learning does not take into account individual differences in modality preference at different age-levels and might well, where older pupils are concerned, run counter to long-established patterns of achievement. Other studies of foreign-language learning have lent support to Lambert's view by highlighting the adverse effect that an uncongenial mode of presentation may have on pupils' attitudes towards learning the language in question. For instance, pupils may react negatively to the passive features of televised instruction (Moskowitz & Amidon, 1962; Moskowitz, 1964) or to the total reliance on the spoken word which the audio-visual approach initially entails (Mueller & Leutenegger, 1964). There is also evidence to suggest that the suitability of a given mode of presentation may vary with the nature of the material to be presented. In their early investigation of the use of radio as an educational medium, Cantril & Allport (1935) concluded that a face-to-face presentation of material was superior to a purely auditory presentation, if the material to be presented were of a complex verbal nature. These findings were subsequently confirmed by Krawiec (1946) and have received further support from more recent language-learning studies in which increased efficiency and enhanced motivation were reported to have followed the addition of visual components to an otherwise auditory presentation (Dodson & Price, 1966; Mueller & Harris, 1966).

Similarly, in the NFER study, it was observed that few of the pupils in the experimental sample were able to tolerate for long a purely auditory presentation of material: most pupils strongly disliked having to accept a passive listening role, a role which, as Gupta and Stern's (1969) findings indicate, is markedly less effective than active practice in the spoken language, if the objective to be achieved is that of oral fluency. The majority of the sample, but particularly the high-achieving pupils, expressed an increasing preference for a visually supported presentation of material as the experiment progressed. This point of view was particularly characteristic of the grammar-school pupils, who tended to reject the audio-visual approach to language learning, in favour of a more traditional textbook-based approach. Allied to this increasing preference for the written aspects of learning French was a growing anxiety regarding the necessity to speak in French, the most anxious group in this respect being the grammar-school girls. For these girls, fear of speaking French was almost invariably linked with fear of being exposed to the ridicule of other members of the class, particularly in a co-educational setting. The evidence would therefore seem to suggest that methods of presenting language-learning material should vary according to the stage of learning reached, the nature of the material, and the ability, maturity and modality preferences of the learner.

2. An 'optimum age' for foreign-language learning?

The belief that young children are better equipped than older children or adults to learn foreign languages with speed and efficiency underlies the recent expansion of foreign-language teaching at kindergarten and elementary-school level. Much of the impetus for the early introduction of foreign-language study can be attributed to the influence of Wilder Penfield's work. Penfield has frequently reiterated the view that the young child's brain is uniquely well adapted for language learning and that there is an 'optimum age' during which 'multiple languages may be learned perfectly, with little effort and without physiological confusion' (Penfield, 1953). Penfield situates this optimum age for language learning within the first decade of life, after which period 'a built-in biological clock' inexorably records the lost educational opportunity (Penfield, 1964). Further attempts to acquire foreign languages will be crowned with only modest success. The age of the learner is thus the most critical factor in the language-learning process: if it is to be successful, foreign-language learning must take place between the ages of four and ten, 'in accordance with the demands of brain physiology' (Penfield & Roberts, 1959).

Although Penfield's views have been extremely influential in stimulating the move towards the earlier learning of foreign languages, they are based on logical inference rather than on direct observation and lack the support of experimental evidence. Other studies which claim to have produced evidence in favour of an early introduction to foreign-language learning tend either to be anecdotal in nature (Dryer, 1956; Price, 1956; Kirch, 1956; Andersson, 1960) or severely limited in scope and deficient in control procedures (Larew, 1961; Brega & Newell, 1965, 1967; Durette, 1972). It is certainly worthy of note that, almost without exception, the research studies which have striven for a high degree of precision and control have failed to produce evidence favouring the younger learner. For example, Thorndike and his associates carried out a series of experiments on the learning of Esperanto, using subjects who ranged in age from 9 to 57, and found that the younger subjects learned more slowly than the older (Thorndike, Bregman, Tilton & Woodyard, 1928). Justman and Nass (1956) studied the foreign-language attainments of 100 matched pairs of high-school students and concluded that those who had studied a foreign language in the elementary school had no long-term advantage over those who had begun their studies later. Grinder and his associates (1961) investigated the relation between age and level of proficiency in Japanese as a second language, using the same audio-lingual course for one year in second-grade, third-grade and fourth-grade classes, and found age and proficiency in Japanese to be positively related: on tests measuring both expressive and receptive skills, the performance of the older children was consistently superior to that of the younger (Grinder, Otomo & Toyota, 1961). In the same vein, Stern (1963) described an experiment in which English was taught to 40 classes of Swedish elementary-school pupils, aged from 7 to 11, and reported that, although subjective estimates of the younger children's progress were favourable, 'a more careful evaluation...by means of scientific procedures at the end of the experimental period led to the somewhat unexpected conclusion that pronunciation as well as understanding improved more rapidly the older the pupils were. Pupils of 11 years of age learnt more accurately and more quickly than the 7-year-olds' (Stearn, 1963). Findings of a similar nature were reported by Asher and Price (1967), who compared the listening comprehension in Russian of adults and of children whose ages ranged from 8 to 14. After all subjects had received identical training in Russian, test results indicated that the adults 'dramatically excelled the children of any age-group tested', while the performance of the older children was significantly superior to that of the younger ones. The authors came to the conclusion that 'when adults learn a second language under the same conditions as children, the adults are superior' (Asher & Price, 1967). Even in the achievement of a native-like pronunciation, where the age of the learner has been held to play a particularly crucial role, the more recent evidence favours the older learner. In 1972, Olson and Samuels reported that, given equal exposure to instruction in German, older pupils achieved a significantly more accurate standard of pronunciation in the language than did younger pupils. Summarising their results, the authors commented: 'The general assumption is that younger children learn to pronounce foreign words with a more native-like accent than older people. Not only is this assumption not supported by the test results but the trend is in a reverse direction favoring older students' (Olson & Samuels, 1972).

Carroll (1963 *a*) has suggested that one of the most important variables in the learning process is the total amount of time spent actively in the learning situation. If to this suggestion is added the assumption that the older learner has developed more efficient learning strategies than the younger, there is no need to seek further for a consistent interpretation of the bulk of the available evidence. To this evidence may be added without dissonance the findings of the NFER evaluation. For example, when the experimental pupils were compared at the age of 13 with a group of control pupils in comprehensive schools who were the same age but who had been learning French for a shorter period, the performance of the experimental pupils on all tests of achievement in French was consistently superior to that of the control pupils. However, when the experimental pupils were compared at the age of 13 with control pupils who had been learning French for an equivalent period of time, but who were, on average, two years older, the control pupils' performance on each of the French tests was consistently superior to that of the experimental pupils. There were also some indications that, with the passage of time, the influence of the age of the learner began to outweigh that of the length of the learning period. For instance, when the experimental pupils were compared at the age of 16 with pupils in schools untouched by the experiment who were the same age but who had been learning French for a shorter period, the experimental pupils scored significantly higher than the control pupils on French Listening and Reading tests, but there were no significant differences between the two groups on French Speaking or Writing tests. A similar 'diminishing returns' effect was observed when the experimental pupils' level of achievement in French was compared with that of control groups of 11-year-old beginners who were in the same secondary schools and, most frequently, in the same French classes as the experimental pupils. When the experimental and the control pupils were compared at the age of 13, the experimental pupils scored significantly higher than the control pupils on French Speaking and Listening tests, but the control pupils' performance on French Reading and Writing tests equalled or surpassed that of the experimental pupils. When the experimental and the control pupils were compared at the age of 16, the only test on which the experimental pupils still scored significantly higher than the control pupils was the Listening test. The two groups of pupils did not differ in their performance on the Speaking test, but the control pupils maintained their superiority on the Reading and Writing tests.

Thus, the most conservative interpretation which the available evidence would appear to permit is that the achievement of skill in a foreign language is primarily a function of the amount of time spent studying that language, but is also affected by the age of the learner, older learners tending to be more efficient than younger ones. Penfield's contention that the first ten years of life constitute a 'critical period' for foreign-language acquisition remains unsupported by direct experimental evidence.

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